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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/661,738 | 09/11/2003 | Peter Tolchinsky | 42P17299 | 8287 |
| 8791 | 7590 | 10/19/2005 | | |
| BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030 | | | EXAMINER THAI, LUAN C | |
| | | | ART UNIT 2891 | PAPER NUMBER |

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,738

Applicant(s)

TOLCHINSKY ET AL.

Examiner

Luan Thai

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election *without traverse* of Embodiment I of Figs. 2-3, on which claims 1-7 are readable, is acknowledged. Claims 8-27 are canceled.

Drawings

2. The drawings are objected to because they contain hand drawn figures and label numbers. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended". If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be noticed and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Chu et al (6,774,010).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1, 5, and 7, Chu et al. (see specifically figures 2A-2J, Col. 5, line 48 to Col. 8, line 48) disclose a method comprising: forming a layer of porous silicon (120) on a top surface of a silicon substrate (110); depositing a layer of silicon (130) on the layer of porous silicon (120), forming a device layer (140) of an integrated circuit device within the layer of silicon (130); bonding a temporary support layer (150) to the device layer (140) via an adhesive (Col. 6, lines 55+); splitting the porous silicon layer (see figure 2G); removing any portion of the porous silicon layer from the silicon layer, and removing the temporary support layer (150) from the device layer (140) (see figure 2J).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (6,774,010).

Regarding claim 3, Chu et al. discloses the claimed invention as detailed above except for specifying a thickness range: approximately 10-50 microns of the silicon layer and approximately 0.1-1 micron of the device layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the silicon layer and the device layer having their thicknesses in the range as claimed (e.g., 10-50 microns and 0.1-1 micron, respectively) because the thickness of the silicon layer or the device layer is an art recognized variable of importance which is subject to routine experimentation and optimization.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (6,774,010) in view of Applicant admitted prior art (figure 1, paragraph [0004]).

Regarding claim 2, Chu et al. disclose the claimed invention as detailed above except for an integrated heat spreader being bonded to the device layer.

The prior art (figure 1 and paragraph [0004]) teach the device layer being packaged and bonding the device layer (104) to an integrated heat spreader (105) in order to improve the heat dissipation from the device package (see paragraph [0004], lines 11-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that combining the integrated heat spreader in applicant admitted prior art (e.g., figure 1) with Chu's invention would have been beneficial because the integrated heat spreader in applicant admitted prior art helps to improve the heat dissipation from the device package.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (6,774,010) in view of Yonehara et al. (5,453,394).

Regarding claim 4, Chu et al. disclose the claimed invention as detailed above except for anodization process being used to form the porous silicon.

Although Chu et al. do not teach the porous silicon being formed by anodization process, Chu et al. do teach that the porous silicon (120) may be formed by any number of method (Col. 5, lines 53-54), and anodization process is commonly applied in semiconductor art for forming porous silicon, as disclosed by Yonehara et al. (Col. 4, lines 62-67, and Col. 11, lines 30+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the porous silicon in Chu et al.'s structure by using anodization process since such process is commonly applied in the art, as taught by Yonehara et al.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (6,774,010) in view of Tayanaka et al. (6,107,213).

Regarding claim 6, Chu et al. disclose the claimed invention as detailed above except for the support layer being plastic.

It should be noted that plastic material is widely used as a support substrate since it provides better insulation and low cost material. For instance, Tayanaka discloses a plastic support substrate (15) being bonded to the device layer (13) in the process of making a thin film semiconductor (Col. 7, lines 8+).

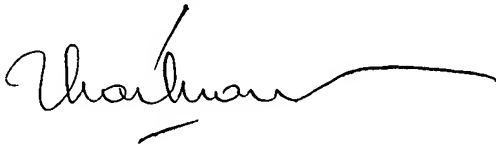
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute plastic as taught by Tayanaka et al. in Chu et al.'s structure in order to provide better insulation and reduce the product cost.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Luan Thai', with a long horizontal flourish extending to the right.

Luan Thai

Primary Examiner

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October 15, 2005